

Controlling the supersaturation of paracetamol by cooling crystallization

장효준, 김광주†  
한밭대학교  
(kjkim@hanbat.ac.kr†)

Paracetamol (or acetaminophen) is a widely used over the-counter analgesic and antipyretic. It is commonly used for the relief of headaches and other minor aches and pains. Paracetamol is known to have three polymorphs: stable form I (monoclinic), metastable form II (orthorhombic), and unstable form III. In this study, by adjusting the degree of supersaturation, crystallization mode (cooling) and operating crystallization conditions (cooling rate): needed polymorphs of paracetamol were selectively crystallized. While 60°C paracetamol's saturation solution is cooled to 10°C, double jacket is measured by in-line Raman spectroscopy. Increasing the cooling rate, metastable form II is easily obtained. Using the Raman spectroscopy and X-ray powder diffraction (XPRD), the polymorphic crystals were identified.